



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D. C. 20555

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AUG 6 1981

G.P.

MEMORANDUM FOR: D. G. Marino
Fuel Behavior Branch
Division of Accident Technology

FROM: G. W. Knighton, Chief
Research and Standards Coordination Branch
Division of Safety Technology

SUBJECT: COMMENTS ON "NRC FUEL TESTING TASK FORCE REPORT
ON THE SEVERE FUEL DAMAGE RESEARCH PROGRAM JULY 1981"

Enclosed the comments on the subject report which we discussed in my office last week. Since several Divisions in NRR are unable to respond in time for your peer review meeting, these comments do not represent ONRR position. A copy of your revised report draft is being made available to the Divisions for their comments. We will provide ONRR comments based upon these reviews.

G. W. Knighton
G. W. Knighton, Chief
Research and Standards Coordination Branch
Division of Safety Technology

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RES SUBJ R2411
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RES Files	
Subject File No.	R 2411
Task No.	
Research Request No.	
FIN No.	
NUREG No.	0840
Docket No.	
Rulemaking No.	
Other	
Return NRC-318	
to RES, Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Copy to PDR

NRC FUEL TESTING TASK FORCE
REPORT ON THE SEVERE FUEL DAMAGE
RESEARCH PROGRAM
JULY 1981

GENERAL COMMENTS:

1. The program is not clear as to what areas of Degraded Core Cooling it is addressing. References to other parts of the overall program and organizations responsible would be quite helpful.
2. There does not appear to be any effort expended using available risk assessment techniques to determine the higher probability accident scenerios to aid in developing the more likely degraded core accidents. This could be very useful in directing the experimental program to areas of higher payoff in both time and recovery. The SASA program efforts may contribute in this area.
3. There are many statements which suggest an intent to develop procedures to manage degraded core accidents. Since procedures to manage these accidents will be highly site and plant specific NRC should only be developing the requirement for such procedures. This program should be limited to that end.
4. The document does not indicate any consideration of the degraded core research that NRC has financed for several years as to its applicability to this program.
5. The ultimate goal stated in the second paragraph page 1-4 far exceeds the NRC's responsibility. Our goal needs to be the technical support for any rule that the staff proposed in the rule-making and the acceptance criteria used by the staff in reviewing documentation submitted by licensees in meeting the rule or rules. As stated, it appears to be doing the licensee's work.
6. The Task Force recommendation for accelerating the TMI-2 core inspection is extremely pertinent. This recommendation should be given all the support necessary to get that inspection completed as early as possible. knowledge of that core could save millions of dollars on this program.
7. It is not clear from the report, why the close down of LOFT should not include some progressive degrading of the core. It would seem to be the best vehicle around short of an operating reactor that is instrumented, contained, and provides reflood capability to study degraded core management needs. If it is decided that the facility should be used in this program the decision should be made this year to make the results available by FY 83-84.

8. Serious consideration should be given to the possibility that the foreign experiments may not be available to meet NRC schedule needs. Our schedule and costs must be fully under NRC control.

ESSOR

SPECIFIC COMMENTS:

On page 1-1, the fifth bullet is a policy statement to be made by NRC not this task force and this should be deleted on page 1-4 second paragraph offers an ultimate goal far exceeding the responsibility of the NRC. The goal of this work should only be the supporting effort necessary, for the rulemaking and the staff information needs for reviewing the licensees documentation meeting whatever rules result from the rulemaking.

On page 1-6, third bullet, suggests insufficient technical basis for considering SFD proof tests in LOFT. LOFT does appear to be an excellent vehicle to perform some progressive degradation of the core since it is instrumented, contained and provides reflood capability. If it is to be used the decision is needed this year to fit tests into the FY 83 schedule rather than mothballing.

On page 1-7, bullets one and two should be given very high priority in developing actual experimental plan. This can be a large contribution to cost effective planning and useful scheduling.

On page 1-7, third bullet says we must have additional money. That is certainly desirable, however, the alternative if this program is required is for RES to propose redistribution of current research finding for consideration of user offices.

The report does not clearly present what phase or phases of the degraded core research it is covering. On one hand it appears to be addressing degraded core coolability above the core support plate. Yet page 1-9 third bullet includes threat and time to failure for melt through.

On page 1-10, second bullet, discusses planned acquisition of significant fission product release data in PBF-SFD tests being reviewed by the existing fission product release and transport group. This aspect of the plan should be given high priority to assure as much useful information as possible on source terms can be gleamed from the experimental work. This is a very important aspect of the research.

On page 1-9 the first bullet discusses the broadening of financial support through participation with other organizations. The high cost of this research certainly requires consideration of this idea, however, careful control of the direction and schedule must be maintained to prevent other parties creating delays similar to the experience of the 2D-3D program UPTF.

On page 1-9, the second bullet suggests the program be expanded to include initial efforts to address in-vessel failures. This is not clear as to what is intended. It's need is certainly based upon better clarification of the contents of this program.

On page 1-9 second bullet under Program actions, analysis of SFD sequences to explore governing phenomena sensitivities should be given very high priority to aid in finalizing experimental plans.

On page 2-3, the introductory paragraph under TMI Action Plan Needs has references to Sections I (A and C) and II (B and F). Reading these sections raises a concern about their applicability as a reference to the research work proposed.

On page 2-4, second paragraph-the first sentence should be restated for proper context - "The specific rules to which the SFD program results are most applicable are....rules".

On page 2-4 third paragraph states that the SFD major focus will be the MESF rule. It would seem that development of information for cooling the core with varying degrees of degradation is the major concern of the DCC rule. If, for example, it were demonstrated analytically or experiemntally that the highest probable Degraded Core scenerios were readily controlled by proper management.

On page 2-5, item 3 calls for design of engineered safety or mitigation features which are relevent to both early in-vessel and late ex-vessel accident management. This effort should not be directed to the design of the features but to the functional requirements for features and the acceptance criteria to be used by the staff in reviewing the proposed designs.